

**What is claimed is:**

1. A gamma camera, comprising:  
a plurality of bar detector strips made of scintillating material, arranged  
in a stack configuration;  
5 at least one photodetector coupled to each end  
of said stack; and  
a slat collimator including a plurality of elongated slats, for collimating  
each of said plurality of bar detector strips to receive gamma photons in only  
a single dimension.  
10
2. A gamma camera as set forth in claim 1, further comprising a pair of  
photodetectors respectively coupled to each end of each bar detector strip of  
said stack.
- 15 3. A gamma camera as set forth in claim 2, wherein said pair of  
photodetectors are silicon strip detectors (SSDs).
4. A gamma camera as set forth in claim 2, wherein said pair of  
photodetectors are photodiodes.  
20
5. A gamma camera as set forth in claim 1, wherein said bar detector strips  
are formed of Csl.
6. A gamma camera as set forth in claim 1, wherein said photodetector is a  
25 position-sensitive photomultiplier tube (PS-PMT).
7. A gamma camera as set forth in claim 1, wherein each bar detector strip is  
located between individual slats of said slat collimator.
- 30 8. A gamma camera according to claim 7, wherein each of said individual  
slats has a length matching the length of said bar detector strips.

9. A gamma camera as set forth in claim 1, wherein said slat collimator is mounted adjacent to said stack.
10. A gamma camera according to claim 9, wherein each of said individual  
5 slats has a length matching the length of said bar detector strips in said stack, and wherein spacing between slats of said slat collimator matches dimensions of said bar detector strips.
11. A gamma camera, comprising:  
10 a plurality of bar detector strips made of scintillating material;  
at least one photodetector coupled to each end  
of each of said bar detector strips; and  
a slat collimator including a plurality of elongated slats, for collimating  
each of said plurality of bar detector strips to receive gamma photons in only  
15 a single dimension.
12. A gamma camera as set forth in claim 11, wherein said photodetectors are silicon strip detectors (SSDs).
- 20 13. A gamma camera as set forth in claim 11, wherein said photodetectors are photodiodes.
14. A gamma camera as set forth in claim 11, wherein said bar detector  
strips are formed of CsI.  
25
15. A gamma camera as set forth in claim 11, wherein each bar detector strip is located between individual slats of said slat collimator.
16. A gamma camera according to claim 15, wherein each of said individual  
30 slats has a length matching the length of said bar detector strips.

17. A gamma camera as set forth in claim 11, wherein said slat collimator is mounted adjacent to said plurality of bar detector strips.

5 18. A gamma camera according to claim 17, wherein each of said individual slats has a length matching the length of said bar detector strips, and wherein spacing between slats of said slat collimator matches dimensions of said bar detector strips.

10 19. A method of obtaining tomographic images of an object, comprising the steps of:

obtaining a plurality of sets of planar integral scintillation event data from said object at a plurality of azimuth angles of a rotating scintillation bar detector for each of a plurality of gantry angles of a gamma camera, said scintillation bar detector including

15 a plurality of bar detector strips made of scintillating material;

at least one photodetector coupled to each end of each of said bar detector strips; and

20 a slat collimator including a plurality of elongated slats, for collimating each of said plurality of bar detector strips to receive gamma photons in only a single dimension; and

reconstructing said plurality of sets of planar integral scintillation event data to form a tomographic image of said object.

25 20. A method of obtaining tomographic images of an object, comprising the steps of:

obtaining a plurality of sets of planar integral scintillation event data from said object at a plurality of azimuth angles of a rotating scintillation detector for each of a plurality of gantry angles of a gamma camera; and

30 reconstructing said plurality of sets of planar integral scintillation event data to form a tomographic image of said object.